

SAT Report

PMN Number: L-12-0010

SAT Date: 10/18/2011

Print Date: 11/26/2014

Related cases:

Concern levels:

Type of Concern:	<u>Health</u>	<u>Eco</u>	<u>Comments</u>
Level of Concern:	1-2	3	

<u>Persistence</u>	<u>Bioaccum</u>	<u>Toxicity</u>	<u>Comments</u>
2	2	1	
		Awaiting	
		Human Health	
		Entry	
		Awaiting	
		Human Health	
		Entry	
		Awaiting	
		Human Health	
		Entry	

Exposure Based Review:

Health: No

Ecotox: No

Routes of exposure:

Health: Dermal Drinking Water Inhalation

Ecotox: All releases to water

Fate: ;

Keywords:

Keywords:

Summary of Assessment:

Fate:

Fate Summary: L-12-0010

FATE:

Solid with MP = 67-70 C (M)

log Kow = 5.21 (E)

S = 0.62 mg/L at 25 C (E)

VP = 4.1E-3 torr at 25 C (NOMO5)
 BP = 290 C (M)
 H = 4.15E-4 (E)
 log Koc = 3.00 (E)
 log Fish BCF = 3.11 (E)
 log Fish BAF = 3.21 (E)
 POTW removal (%) = 84 via sorption
 Time for complete ultimate aerobic biodeg = mo
 Sorption to soils/sediments = strong - v.strong
 Volatilization half-life from a standard river = 4 hrs
 Volatilization half-life from a standard lake = 8 da
 Atmospheric Oxidation Half-life = 180 hr via OH radical
 PBT Potential: P2B2
 *CEB FATE: Migration to ground water = negl - slow

Health:

Health Summary: Absorption is nil through the skin as the neat material, poor through the skin when in solution, and poor through the lungs and GI tract based on physical/chemical properties. There is concern for mutagenicity, neurotoxicity, and liver effects for the aromatic bromines and uncertain concern for developmental toxicity based on small benzene compounds. Low moderate concern.

Ecotox:

Test Organism	Test Type	Test End Point	Predicted	Measured	Comments
fish	96-h	LC50	0.38		
daphnid	48-h	LC50	0.34		
green algal	96-h	EC50	0.66		
fish	—	chronic value	0.049		
daphnid	—	chronic value	0.066		
algal	—	chronic value	0.43		
Sewage Sludge	3-h	EC50	—		
Sewage Sludge	—	Chronic Value	—		

Ecotox Values Comments:

Factors	Values	Comments
Assessment Factor	10	
Concentration of Concern (ppb)	5	
SARs	neutral organic chemicals	

SAR Class	brominated hydrocarbon	new chemicals category: neutral organics
Ecotox Category		

Ecotox Factors Comments:

SAT Chair: Becky Jones

Focus Report
New Chemicals Program
PMN Number: **L-12-0010**

Focus Date: 10/23/2011 11:00:00 PM Report Status: Completed
Consolidated Set:
Focus Chair: Rose Allison Contractor: Stephen Wieroniey

I. Notice Information

Submitter: Tracerco CAS Number: 6320-40-7
Chemical Name: Benzene, 1,3,5-tribromo-2-methyl-
Use: Tracer chemical to measure flow in deep oil-bearing strata. Related Cases Submitted Together: L-12-7, L-12-10, L-12-11. P2 Claim: Petroleum producers traditionally have used radionuclide tracers to measure the flow rate in oil-bearing strata and to adjust their pumping rate to achieve desirable flow characteristics. The LVE substance is a substitute for these radionuclides. Its use will result in a reduced handling of radioactive materials by both contractors and oil production employees, as well as lower release of radioactive materials into the environment.

Other Uses:

PV-Max: 1,000 Kg/yr Binding Option: Yes
Manufacture: Import: X

II. SAT Results

(1) **Health Rating:** 1-2 **Eco Rating:** 3 **Comments:** ;

Occupational: 2-3A **Non-Occupational:** **Environmental:** 2

(1) **PBT:** 2 2 1 **Comments:**

III. OTHER FACTORS

Categories:

Health Chemical Category: Ecotox Category: neutral organic chemicals

Related Cases/Regulatory History:

Health related Cases: [REDACTED]
Ecotox Related Cases: **Analogs:** [REDACTED]
Regulatory History: [REDACTED] -SR DIV DIR BRIEF'G DROP
[REDACTED] -WITHDRAWN

MSDS/Label Information:

MSDS: Yes Label: No
General Equipment: impervious gloves / safety glasses / protective work clothing / properly operating chemical fume hood designed for hazardous chemicals and having an average face velocity of at least 100 feet per minute.
Respirator: use suitable respirator when high concentrations are present
Health Effects: causes skin irritation / causes serious eye irritation / may cause respiratory irritation
TLV/PEL (PMN or raw material): - None Established
LVEPPE: impervious gloves / goggles / Tyvek suit

Exposure Based Information:

Exposure Based Review: N Exposure Based Review (Health): N
Exposure Based Review (Eco): N Exposure Based (Occupational): No
Exposure Based Review (Non Occupational): Exposure Based (Environmental):

IV. Summary of SAT Assessment

Fate:

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Ecotox:

Ecotox Values:
Fish 96-h LC50: 0.38(P)
Daphnid 48-h LC50: 0.34(P)
Green algal 96-h EC50: 0.66(P)
Fish Chronic Value: 0.049(P)
Daphnid ChV: 0.066(P)
Algal ChV: 0.43(P)

Ecotox values comments: Predictions are based on SARs for neutral organic chemicals; SAR chemical class = brominated hydrocarbon; MW 329; log Kow = 5.21 (EPI); solid with mp = 66 C (M); pH7; effective concentrations based on 100% active ingredients and mean measured concentrations; hardness <150.0 mg/L as CaCO3; and TOC <2.0 mg/L;

Ecotox Factors:

Assessment Factor: 10
Concern Concentration: 5

V. Summary of Exposures/Releases

Engineering Summary: L-12-0010

Exposures/Releases	Release	Release	Release
Scenario	Processing: Tracer Chemical Formulation	Processing: Tracer Chemical Formulation	Processing: Tracer Chemical Formulation
Sites	1	1	1
Media	Water or Air or Incineration or Landfill	Water or Incineration or Landfill	Water or Incineration or Landfill
Descriptor A	Output 2	Output 2	Conservative
Quantity A (kg/site/day)	3.1E-1	6.2E-1	6.2E-1
Frequency A (day/year)	16	16	16
Descriptor B			
Quantity B (kg/site/day)			
Frequency B (day/year)			
From	Unloading Solid Raw Material from Transport Containers	Cleaning Solid/ Powder Residuals from Containers Used to Transport the Raw Material	Equipment Cleaning Losses of Liquids from a Single, Small Vessel
Workers			
Exposure Type			

Engineering Summary: Exposures/Releases	Release	Release	Release
Scenario	Processing: Tracer Chemical Formulation	Processing: Tracer Chemical Formulation	Use: Injection of Tracer Chemical into Oil-Bearing Strata
Sites	1	1	1
Media	Air	Air	Air
Descriptor A	Output 2	Typical	Typical
Quantity A (kg/site/day)	3.4E-4	8.6E-6	2.8E-6
Frequency A (day/year)	16	16	50
Descriptor B		Worst Case	Worst Case
Quantity B (kg/site/day)		8.6E-6	2.8E-6
Frequency B (day/year)		16	50
From	Equipment Cleaning Losses of Liquids from a Single, Small Vessel	Loading Liquid Product into Containers	Unloading Liquid Product from Containers
Workers			
Exposure Type			

V. Summary of Exposures/Releases

Engineering Summary: L-12-0010

Exposures/Releases	Release	Release	Exposure
Scenario	Use: Injection of Tracer Chemical into Oil-Bearing Strata	Use: Injection of Tracer Chemical into Oil-Bearing Strata	Processing: Tracer Chemical Formulation
Sites	1	1	1
Media	Water or Incineration or Landfill	Incineration	Dermal
Descriptor A	High End	Output 2	High End
Quantity A (kg/site/day)	1.2E-1	2.0E+1	3.0E+3
Frequency A (day/year)	50	50	16
Descriptor B			
Quantity B (kg/site/day)			
Frequency B (day/year)			
From	Cleaning Liquid Residuals from Containers Used to Transport the Product	Oil Production	Unloading Solid Raw Material from Transport Containers
Workers			3
Exposure Type			Solid

Engineering Summary: Exposures/Releases	Exposure	Exposure	Exposure
Scenario	Processing: Tracer Chemical Formulation	Processing: Tracer Chemical Formulation	Processing: Tracer Chemical Formulation
Sites	1	1	1
Media	Inhalation	Dermal	Inhalation
Descriptor A	Upper Bound	High End	Worst Case
Quantity A (kg/site/day)	1.5E+2	7.1E+2	4.1E-2
Frequency A (day/year)	16	16	16
Descriptor B			Typical
Quantity B (kg/site/day)			1.4E-3
Frequency B (day/year)			16
From	Unloading Solid Raw Material from Transport Containers	Loading Liquid Product into Containers	Loading Liquid Product into Containers
Workers	3	3	3
Exposure Type	Particulate	Liquid	Vapor

V. Summary of Exposures/Releases

Engineering Summary: L-12-0010

Exposures/Releases	Exposure	Exposure	
Scenario	Use: Injection of Tracer Chemical into Oil-Bearing Strata	Use: Injection of Tracer Chemical into Oil-Bearing Strata	
Sites	1	1	
Media	Dermal	Inhalation	
Descriptor A	High End	Worst Case	
Quantity A (kg/site/day)	7.1E+2	4.0E-2	
Frequency A (day/year)	50	50	
Descriptor B		Typical	
Quantity B (kg/site/day)		1.3E-3	
Frequency B (day/year)		50	
From	Unloading Liquid Product from Containers	Unloading Liquid Product from Containers	
Workers			
Exposure Type	Liquid	Vapor	

VI. Focus Decision and Rationale

Regulatory Actions

Regulatory Decision: LVE Conditional Grant

Decision Date: 10/23/2011

Type of Decision:

Rationale: L-12-0010 was given a conditional grant. Human health concerns were low-moderate for dermal, drinking water and inhalation exposure. Potential risks to workers were addressed by adequate dermal PPE. There were health concerns based on aromatic bromines and benzene. However, the submitter must amend the notice and MSDS to include a NIOSH-certified combination respirator with an APF of 10. Ecotoxicity concerns were high. Potential risks to the environment were low due to less than 20 days of exceedance of the COC. This LVE was bound at 1,000 kg/year.

COC: Chronic – 5 ppb; Acute – 68 ppb

Summary of Exposures and Releases:

Processing:

1 site, 16 days/year, 3 workers

Inhalation 1: Part: 1.5E+2 mg/day

Inhalation 2: Vapor: Typical: 1.4E-3 mg/day; Worst Case: 4.1E-2 mg/day

Dermal 1: 3.0E+3 mg/day (Solid 98%)

Dermal 2: 7.1E+2 mg/day (Liquid 40%)

Releases to Water 1: 3.1E-1 kg/site-day over 16 days/yr

Or Air or Incineration or Landfill

Releases to Water 2: 6.2E-1 kg/site-day over 16 days/yr

Or Incineration or Landfill

Releases to Water 3: 6.2E-1 kg/site-day over 16 days/yr

Or Incineration or Landfill

Releases to Air 1: 3.4E-4 kg/site-day over 16 days/yr

Releases to Air 2: Typical: 8.6E-6 kg/site-day over 16 days/yr; Worst Case: 8.6E-6 kg/site-day over 16 days/yr

Fate Releases to Water (84% Removal):

SWC: 45.84 ppb

DW: LADD: 1.68E-06 mg/kg/day; ADR: 2.21E-03 mg/kg/day

FI: LADD: 9.13E-06 mg/kg/day; ADR: 1.12E-02 mg/kg/day

Fate Release to Air:

Stack Air: LADD: 6.73E-06 mg/kg/day; ADR: 1.91E-03 mg/kg/day

Fugitive Air: LADD: 7.79E-03 mg/kg/day; ADR: 1.10E-05 mg/kg/day

Fate Releases to Landfill: LADD: 6.21E-07 mg/kg/day

Use:

1 site, 50 days/year, 3 workers

Inhalation Vapor: Typical: 1.3E-3 mg/day; Worst Case: 4.0E-2 mg/day

Dermal: 7.1E+2 mg/day (Liquid 40%)

Releases to Water: 1.2E-1 kg/site-day over 50 days/yr

Or Incineration or Landfill

Releases to Air: Typical: 2.8E-6 kg/site-day over 50 days/yr; Worst Case: 2.8E-6 kg/site-day over 50 days/yr

Releases via Incineration: 2.0E+1 kg/site-day over 50 days/yr

Fate Releases to Water (84% Removal):

SWC: 18.11 ppb

DW: LADD: 1.85E-06 mg/kg/day; ADR: 8.27E-04 mg/kg/day

FI: LADD: 1.00E-05 mg/kg/day; ADR: 3.94E-03 mg/kg/day

>COC (5 ppb): 13/50 release days

Fate Release to Air:

Stack Air: LADD: 2.73E-04 mg/kg/day; ADR: 2.57E-02 mg/kg/day

Fugitive Air: LADD: 3.09E-10 mg/kg/day; ADR: 7.04E-08 mg/kg/day

Fate Releases to Landfill: LADD: 1.50E-07 mg/kg/day

P2 Rec Comments:

Testing:

Final Recommended:

Health:

Eco:

Fate:

Other: